

POSITIONING SYSTEM WITH CONTINUOUS-RANGE
INCLINATION AND ROTATION ANGLES

ABSTRACT OF THE DISCLOSURE

5 In a system for controlling the inclination angle and rotation angle of a body, a rotary actuator is coupled to a base. A pivot actuator is coupled to an output shaft of the rotary actuator. The rotary actuator controls the angular position of the pivot actuator. A displacement member is coupled to an output shaft of the pivot actuator. The pivot actuator controls the linear position of the displacement member. A support shaft is pivotably coupled to the displacement member.

10 A spherical bearing includes a socket that is coupled to the base and a ball that is coupled to the support shaft. In this manner, the angular position and linear position of the displacement member is translated to a corresponding rotation angle and inclination angle in the support shaft. This system provides for a continuous range of rotation of the upper body and a continuous range of inclination angles in the upper body relative to the lower base. An optional system for

15 deploying the legs provides for continuous, controlled motion in their release. In doing so, the present invention provides a system with a higher degree of flexibility, precision and reliability.